EUREF Symposium 2005 Vienna, Austria

National Report of Italy

Presented by:

Agenzia Spaziale Italiana

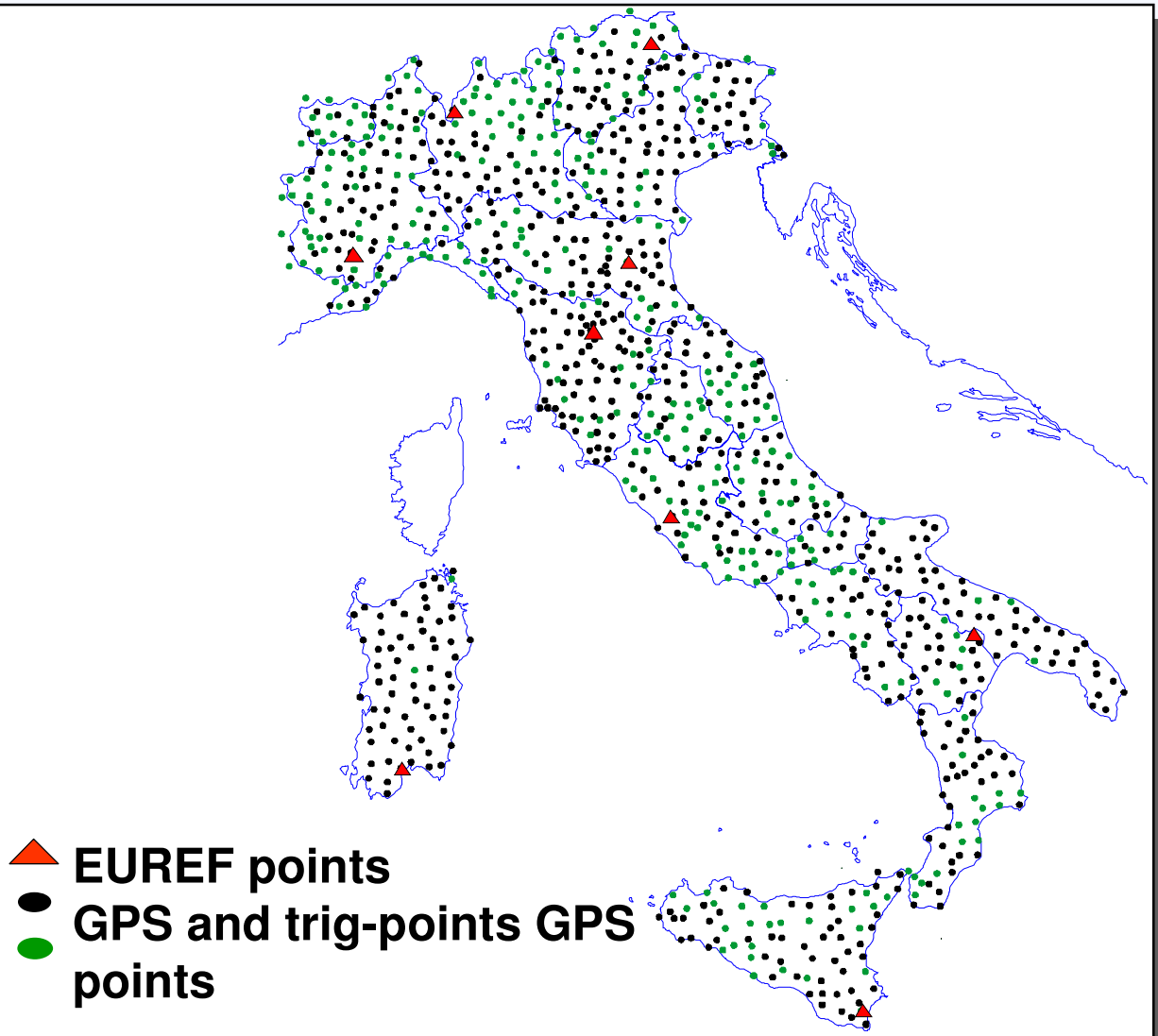
Istituto Geografico Militare Italiano

Università di Padova

IGM95 (ETRF89 compliant)

IGM95 network maintenance and densification

The main activities concerning the GPS IGM95 network – which is now composed by about 2000 points – are: (a) some minor densifications (mostly devoted to restore damaged or missing monumentations) and, above all, (b) a **systematic densification of the GEOTRAV points.** The latter activity aims to increase the number of **IGM95 points altimetrically connected with the benchmarks of the leveling lines**, in order to determine a reliable link between ellipsoidal and a.m.s.l. heights.



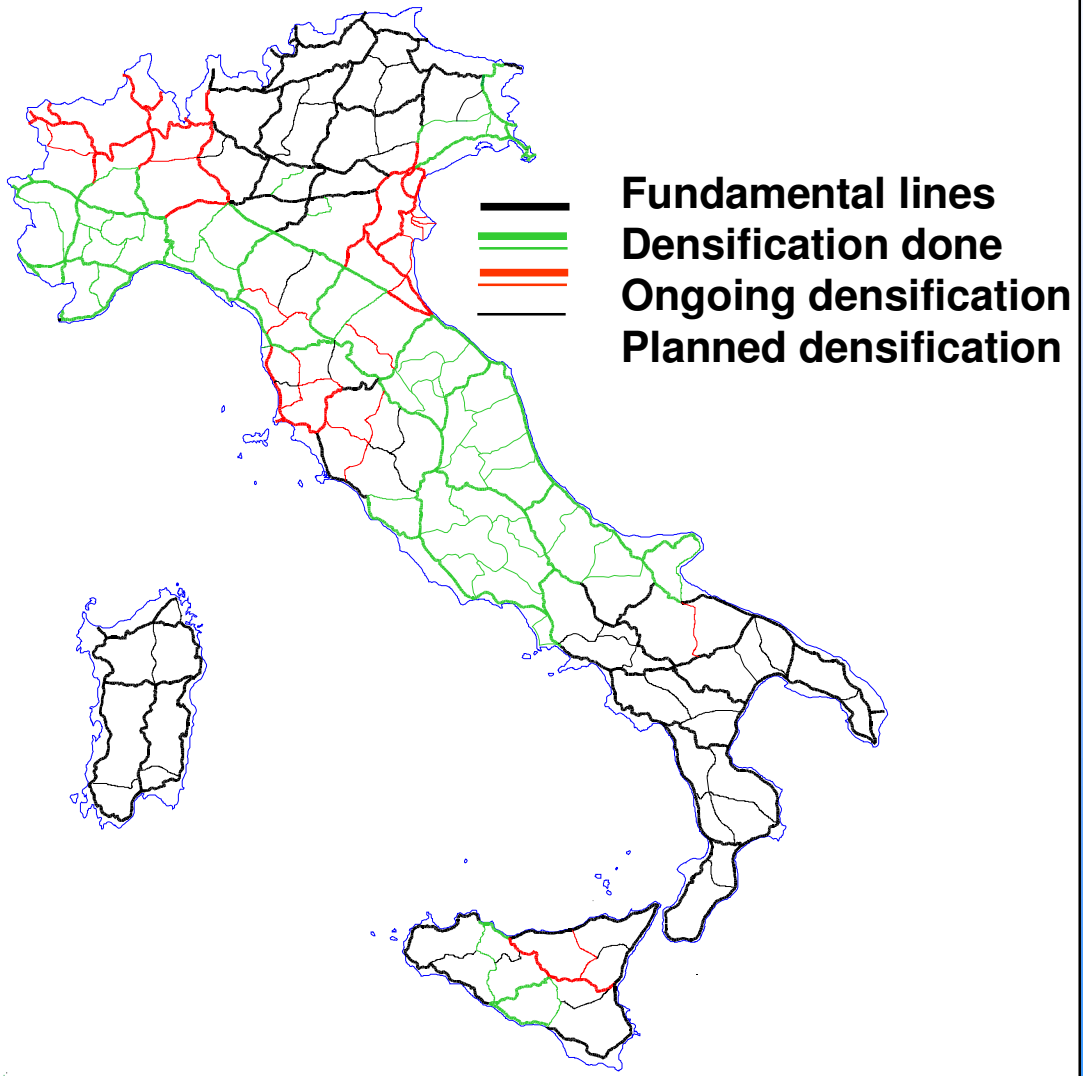
High precision leveling net

High precision leveling net maintenance and densification

The project of revision and densification of the fundamental leveling net (started some years ago) aims both to provide the national surveyors with a more reliable and effective reference for their professional purposes and to make available a denser and controlled frame for scientific purposes (DTM's and/or geoid checks).

The total length of the densification lines is about **7000 km (which are going to increase the 13000 km of the fundamental leveling network).**

During the year 2004, over 1000 km have been measured (including old and new lines).

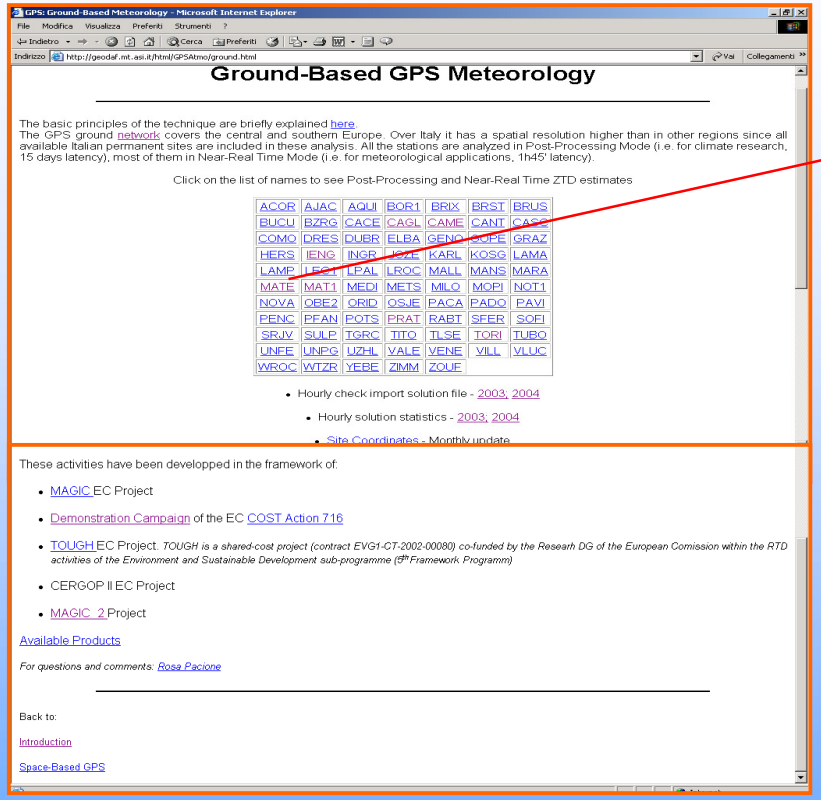


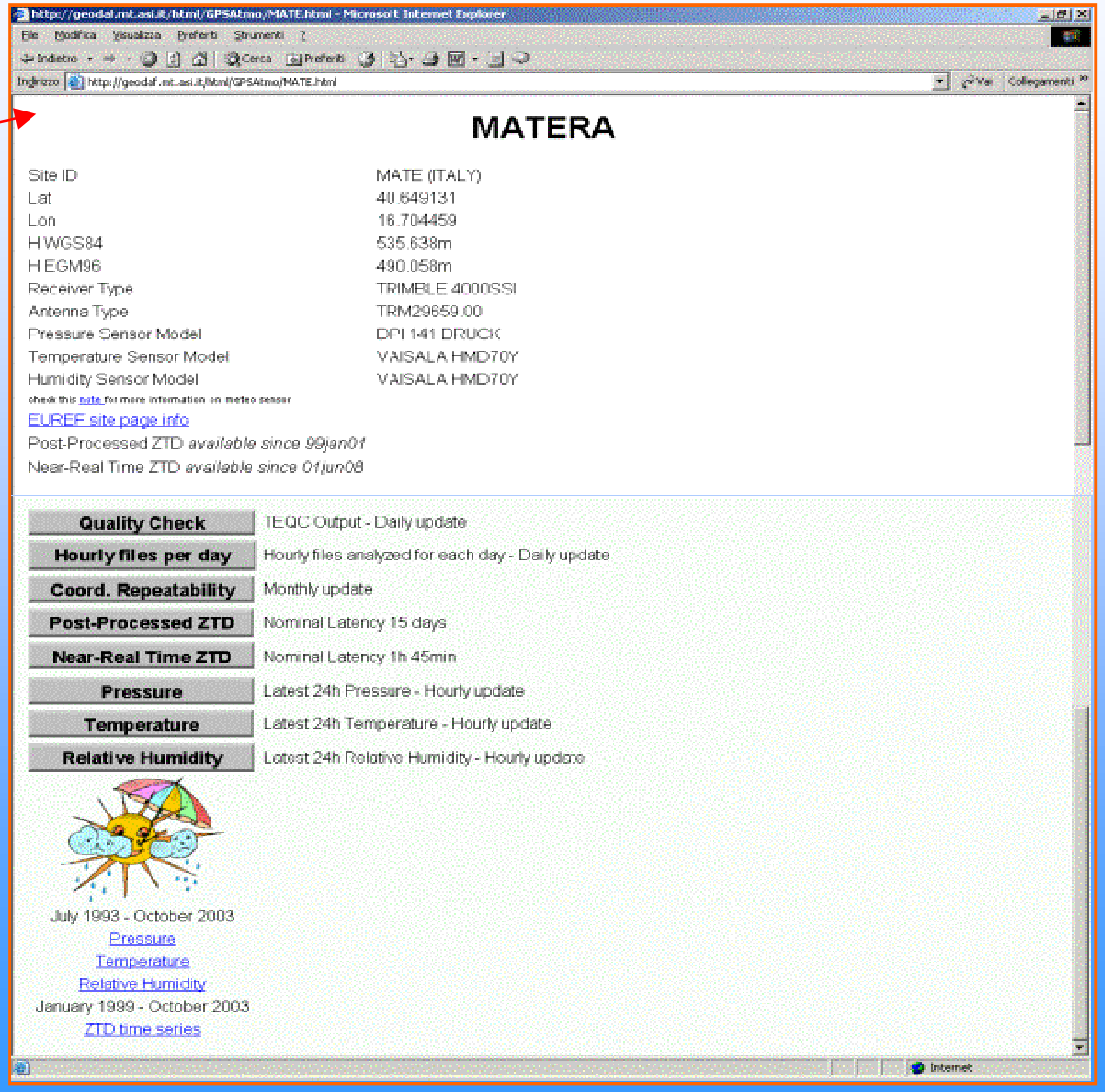
ASI Activities

- Regional Data Center
- LAC (50 stations  Strain Rate
- ZTD Estimations  NWP

ASI as Regional Data Center

http://geodaf.mt.asi.it/html/GPSAtmo/ground.html

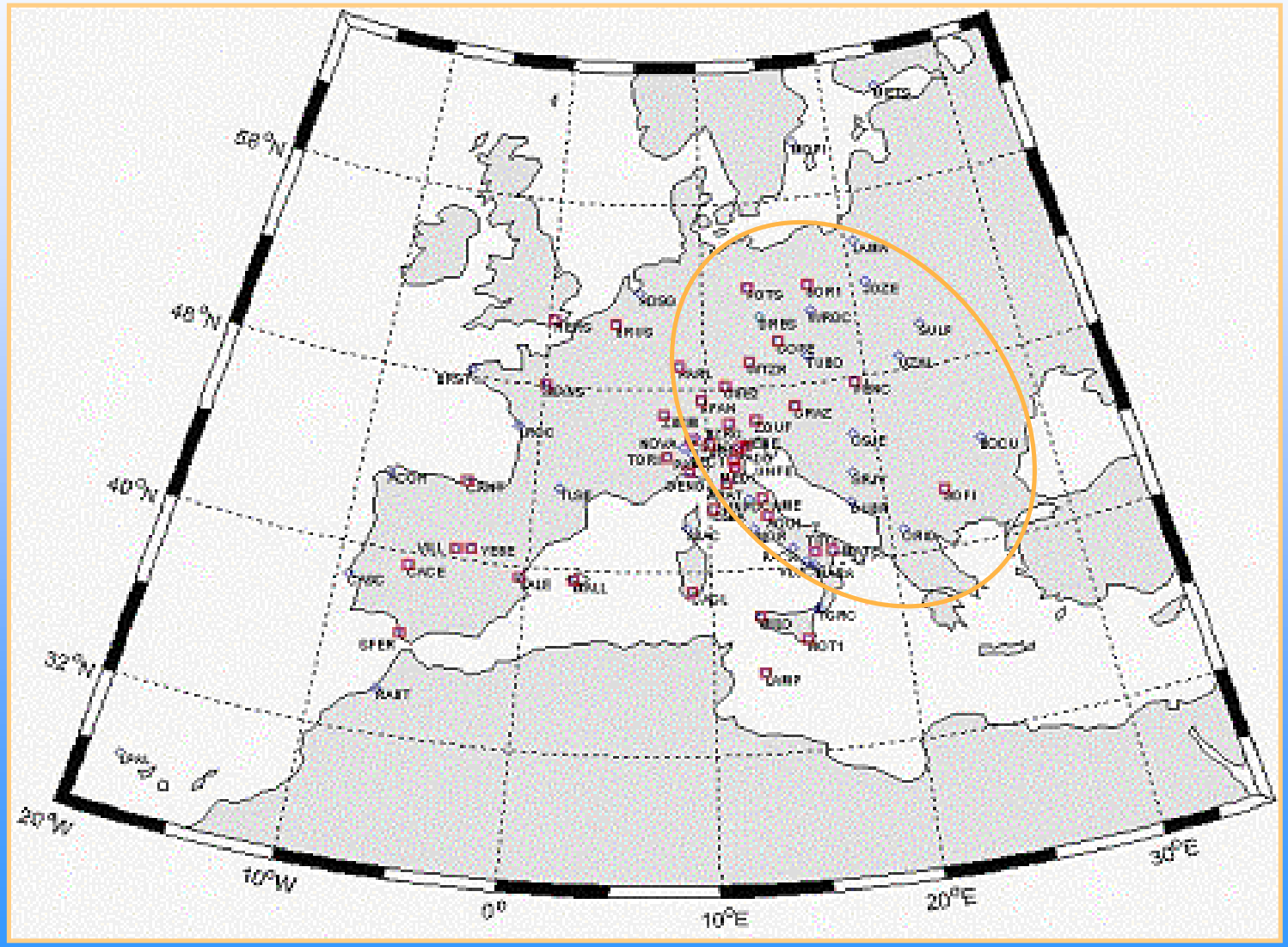




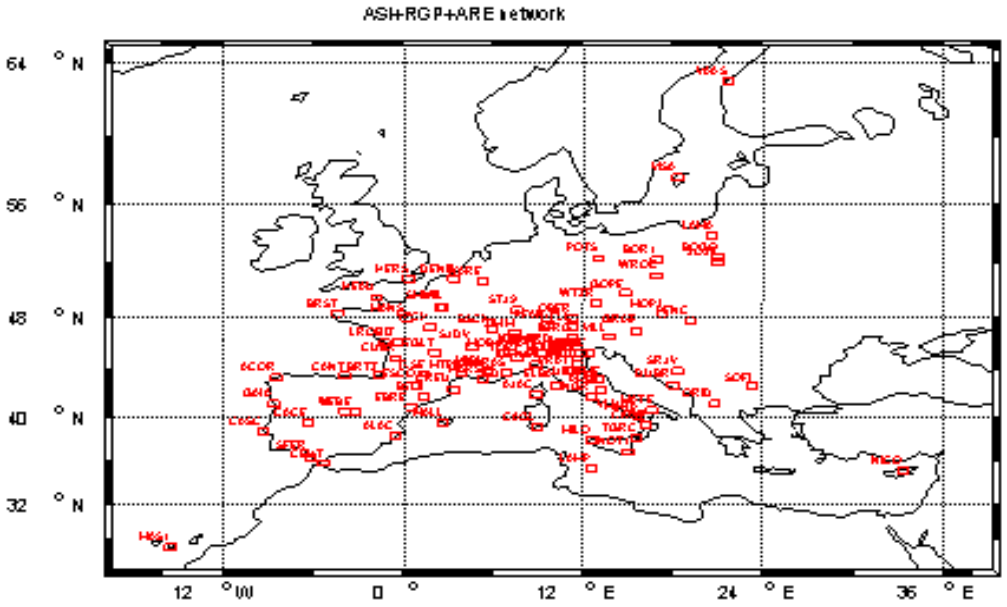
GPS Zenith Total Delay Estimation

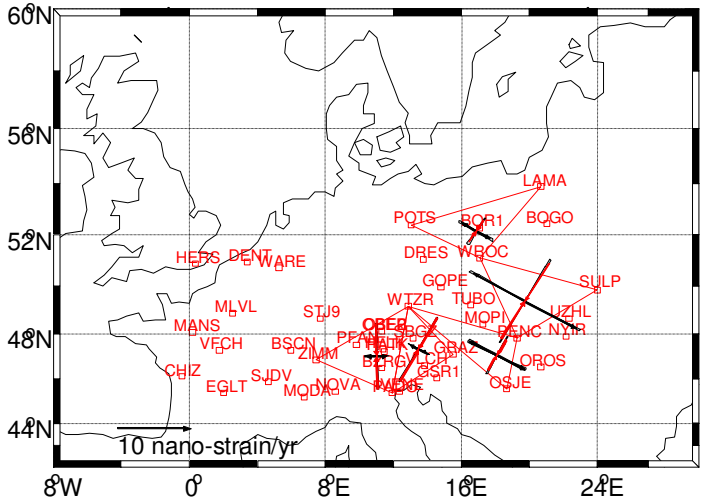
NETWORK: 120 Permanent Stations

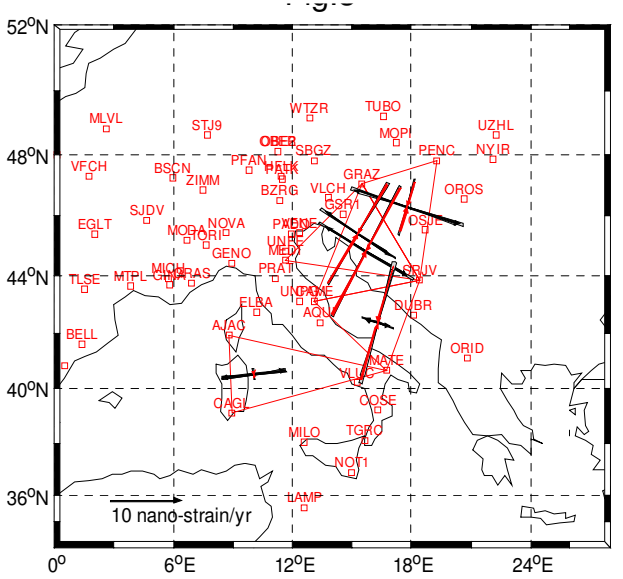
95 Stations analyzed in Post-Processing
46 Stations analyzed in Near Real Time



Coordinates Weekly Solutions and Strain rate deformation analysis (1/2)



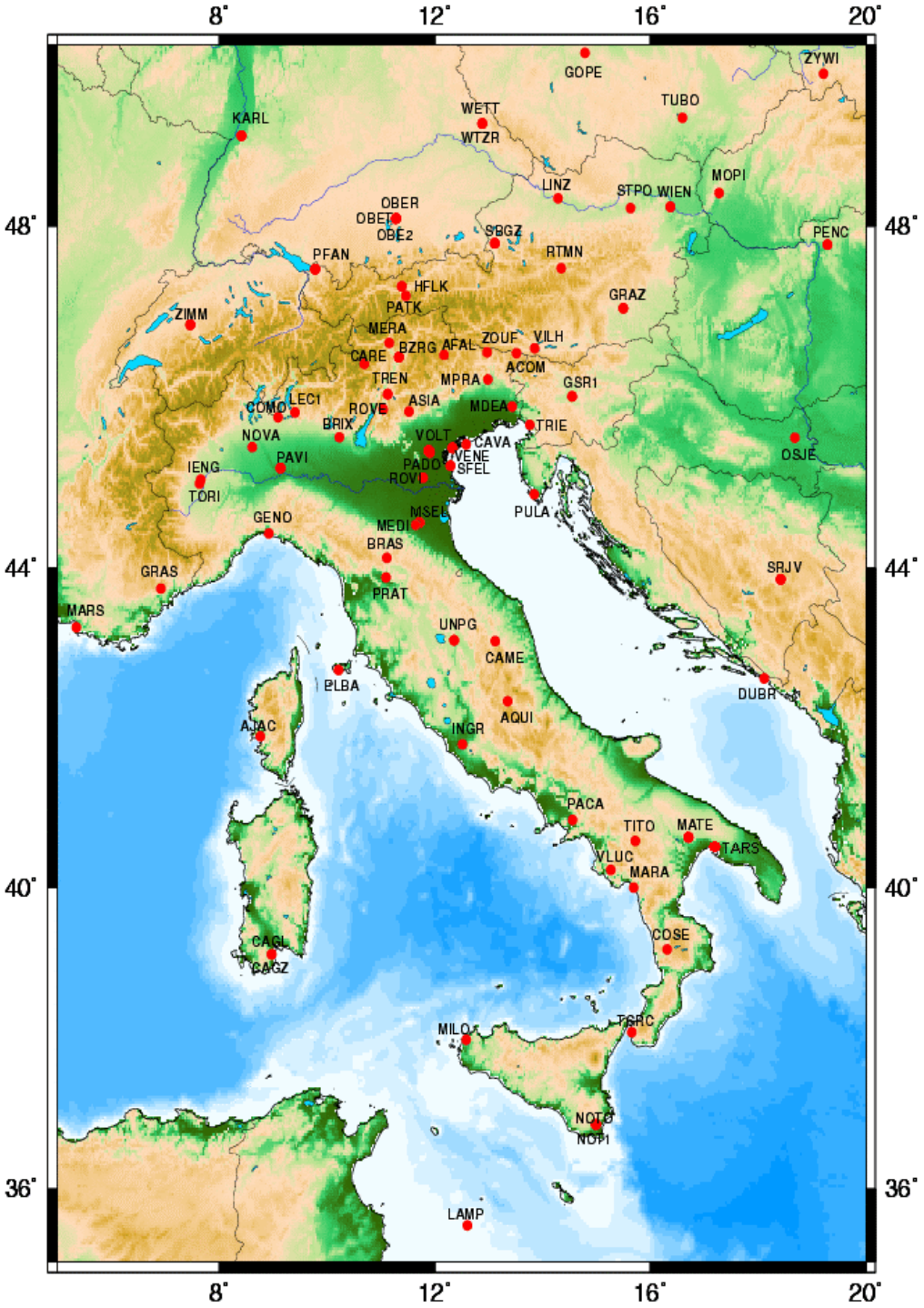




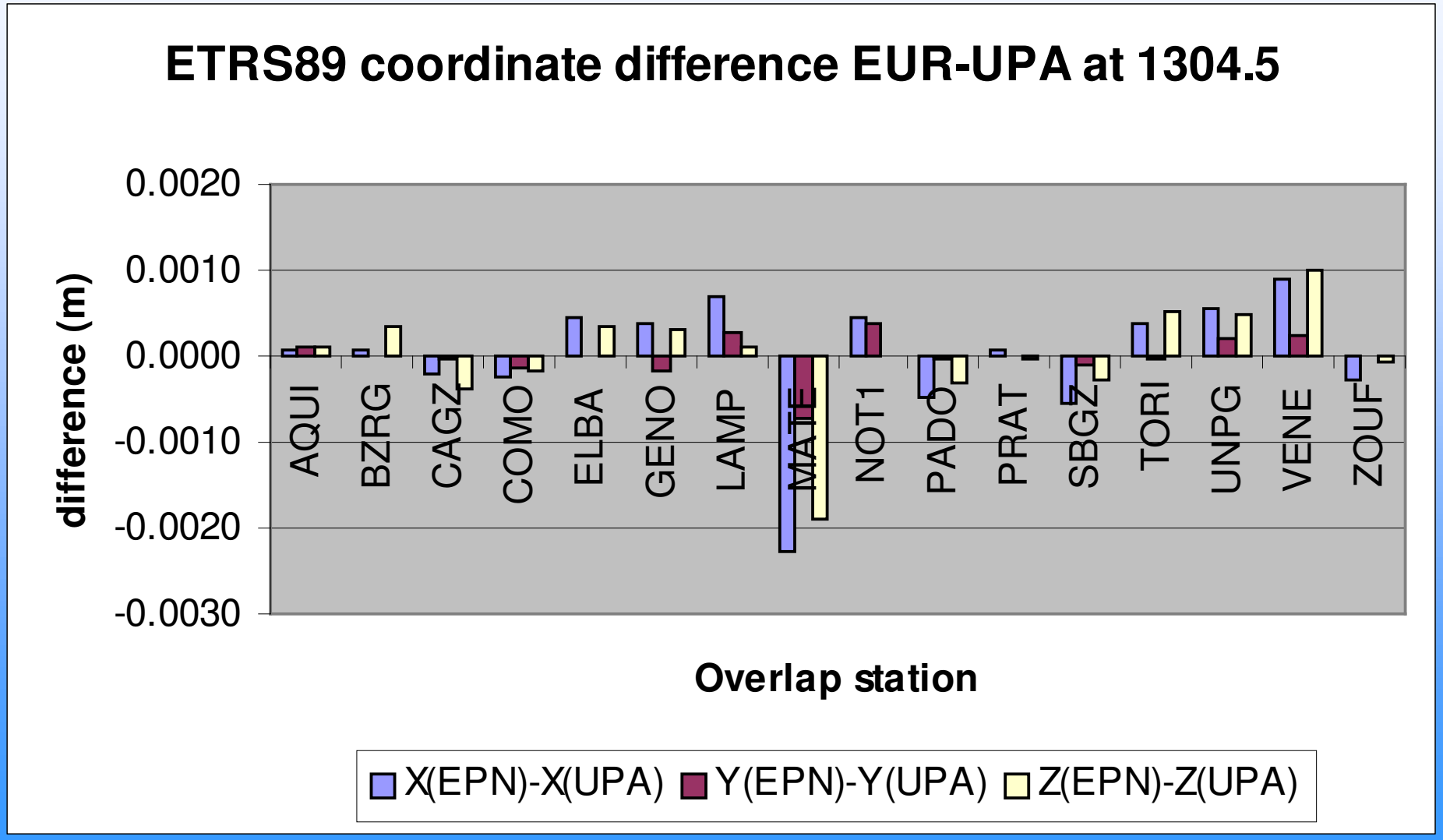
ASI-CGS network, processed on weekly basis, currently consist of about fifty GPS permanent stations in Spain, Italy, Germany, Croatia and Macedonia + Others

ETRS89 coordinates of Non EPN stations (except HFLK) used in surveys, RTCM/RTK.. (following ideas of Torres and Koesters, and discussions within the TWG)

ACOM00000M000	FredNet
AFAL00000M000	FredNet
ASIA12714M001	Univ. Of Padova /CEGRN
BRAS00000M000	Univ. Of Bologna
CAVA00000M000B	Consorzio Venezia Nuova
HFLK11006S003B	AREF
INGR00000M000	Istituto Nazionale di Geofisica e Vulcan.
LEC112768M001	Polytech. Of Milano
MERA00000M000A	Studio Sacchin
MPRA12764M001	FredNet
NOVA00000M000	Polytech. Of Torino
PATK11029S001	AREF
ROVE00000M000	Technical Institute for Surveyors
ROVI12769M001	Univ. Of Padova /CEGRN
SFEL00000M000B	Consorzio Venezia Nuova
STPO00000M000	AREF
TRIE00000M000	FredNet
VOLT00000M000B	Consorzio Venezia Nuova
WIEN00000M000B	AREF



Validation of alignment of densified network wrt EPN, using common stations



ETRS89 Coordinates of permanent, high quality but non EPN stations in Italy and Austria

X_ETRS89 (m)	Y_ETRS89 (m)	Z_ETRS89 (m)	Station	DOMES	YYYY	MM	DD
4273811.0533	1027226.4165	4608634.7682	ACOM	00000M000	2005	1	5
4298653.2975	927400.2740	4607414.1754	AFAL	00000M000	2005	1	5
4360032.9284	889071.7926	4555699.4546	ASIA	12714M001	2005	1	5
4500677.3756	884064.7680	4418473.1597	BRAS	00000M000	2005	1	5
4372204.8562	975914.7196	4524895.0766	CAVA	00000M000B	2005	1	5
4248505.3397	855575.5021	4667172.0736	HFLK	11006S003B	2005	1	5
4646739.5024	1031416.3613	4231463.7764	INGR	00000M000	2005	1	5
4390093.3364	727322.6338	4554436.1356	LEC1	12768M001	2005	1	5
4301951.1665	848418.3724	4616835.5548	MERA	00000M000A	2005	1	5
4306530.4860	993265.4813	4584380.2752	MPRA	12764M001	2005	1	5
4431899.3912	671366.9771	4522512.0289	NOVA	00000M000	2005	1	5
4255736.3155	862759.6805	4659191.2678	PATK	11029S001	2005	1	5
4364680.8554	851736.5953	4557204.6964	ROVE	00000M000	2005	1	5
4415779.8701	921117.4155	4494189.8150	ROVI	12769M001	2005	1	5
4396376.9774	957869.3404	4505424.6004	SFEL	00000M000B	2005	1	5
4101581.1179	1147722.7005	4732213.4287	STPO	00000M000	2005	1	5
4333582.0268	1061504.3450	4543010.4123	TRIE	00000M000	2005	1	5
4390693.4013	926138.2531	4517506.8042	VOLT	00000M000B	2005	1	5
4085097.7126	1200224.1632	4733306.7404	WIEN	00000M000B	2005	1	5